



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/943,919	08/31/2001	Shulong Li	5312	2185

7590 04/04/2006
Milliken & Company
P.O. Box 1927
Spartanburg, SC 29304

EXAMINER

SHEWAREGED, BETELHEM

ART UNIT PAPER NUMBER

1774

DATE MAILED: 04/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/943,919

Applicant(s)

LI ET AL.

Examiner

Betelhem Shewareged

Art Unit

1774

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 26,37,48 and 58-63 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 26,37,48 and 58-63 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/11/05;11/17/05.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

1. Applicant's Request for Continued Examination (RCE) filed on 11/17/2005 has fully considered. Claims 1-25, 27-36, 38-47 and 49-57 are canceled, and claims 26, 37, 48 and 58-63 are pending.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 26, 37, 48 and 58-63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nigam (US 6,291,023 B1) in view of Sismondi et al. (US 6,387,473 B1) and Mishima (US 6,183,851 B1).

Nigam discloses Images printed on a textile substrate coated with a coating composition (abstract). The coating composition is equivalent to the claimed treatment mixture. The coating composition comprises dye mordant (col.12, line 7) and UV absorber (col. 12, line 8). The dye mordant is equivalent to the claimed amine-containing cationic compound. The coating composition is applied on the substrate as a pretreatment prior to printing. The coated textile substrate is printed with suitable ink using ink jet printing method, wherein the ink comprises an anionic colorant (col. 13, line 66 thru col. 14, line 33). Nigam fails to disclose amine-containing cationic compound as the dye mordant.

Sismondi teaches an ink jet receiving sheet comprising a support and at least two ink receiving layers (abstract). The ink receiving layer is equivalent to the claimed treatment mixture layer. The ink receiving layer comprises UV absorbers (col. 10, line 36) and amine-containing cationic mordants (col. 7, line 62 thru col. 8, line 61). Since the amine-containing cationic mordants of Sismondi are substantially identical to the claimed amine-containing cationic compounds, the amine-containing cationic mordants of Sismondi possess the claimed range of charge density.

Nigam and Sismondi are analogous art because they are from the same field of endeavor that is the ink jet recording medium art. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the amine-containing cationic mordants of Sismondi with the invention of Nigam so as to enhance the ink fixing property of the layer (col. 7, line 64 of Sismondi).

Nigam fails to disclose specific types of the UV absorber.

Mishima teaches an ink jet image recording medium comprising a support and a coating layer on the support (abstract). The coating composition is equivalent to the claimed treatment mixture layer. The coating composition comprises amine-containing cationic compound (col. 15, line 62), and UV absorbers such as benzotriazole-based compound and benzophenone-based compound (col. 16, lines 29-36). The experimental modification of this prior art in order to ascertain optimum operating conditions fails to render applicants' claims patentable in the absence of unexpected results. *In re Aller*, 105 USPQ 233. One of ordinary skill in the art would have been motivated to adjust the content of the UV absorber in order to optimize the light

stabilizing properties of the layer. A prima facie case of obviousness may be rebutted, however, where the results of the optimizing variable, which is known to be result-effective, are unexpectedly good. *In re Boesch and Slaney*, 205 USPQ 215.

Nigam and Mishima are analogous art because they are from the same field of endeavor that is the ink jet recording medium art. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the UV absorbers of Mishima with the invention of Nigam in order to inhibit the discoloration of an image on the recording medium (col. 16, lines 17-21 and 43-49 of Mishima).

The process by which the treatment mixture and the ink are applied is not dispositive of the issue of the patentability of the instant article claims.

Claim Rejections - 35 USC § 103

4. Claims 26, 37, 48 and 58-63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawai et al. (EP 0 896 883 A1) in view of Romano, Jr. et al. (US 6,020,032) and Abe et al. (US 5,372,884).

Kawai discloses a recording sheet comprising a substrate and an ink absorbing layer containing a cationic compound having at least crosslinking groups (abstract). The substrate includes non-woven cloth [0015]. Examples of a cationic monomer are disclosed in [0023]. Since the cationic monomer of Kawai is substantially identical to the claimed amine-containing cationic compound, the cationic monomer of Kawai possesses the claimed range of charge density. The ink absorbing layer further comprises UV absorber [0062]. The recording sheet is formed by coating a composition

Art Unit: 1774

for forming the ink absorbing layer onto the substrate, and heating the coated substrate at a temperature ranging from 50 to 150 degree C [0067]. An image is printed on the ink absorbing layer using an ink jet ink [0072]. The experimental modification of this prior art in order to ascertain optimum operating conditions fails to render applicants' claims patentable in the absence of unexpected results. *In re Aller*, 105 USPQ 233. One of ordinary skill in the art would have been motivated to adjust the content of the UV absorber in order to optimize the light stabilizing properties of the layer. A prima facie case of obviousness may be rebutted, however, where the results of the optimizing variable, which is known to be result-effective, are unexpectedly good. *In re Boesch and Slaney*, 205 USPQ 215. Furthermore, the use of azole-containing compound as a UV absorber is well known in the art (see *Abe col. 4, line 35*).

Kawai fails to teach that the ink jet ink is anionic.

Romano teaches an ink jet recording element comprising a support, a gloss-enhancing layer, and an ink receptive layer for an ink jet image (abstract). Romano further teaches the use typical ink jet ink containing anionic dye (col. 4, line 40)

Kawai and Romano are analogous art because they are from the same field of endeavor that is the ink jet recording art. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the ink jet ink of Romano with the invention of Kawai so as to mordant or fix the anionic dye with the cationic compound of the ink absorbing layer (col. 4, line 44 of Romano, Jr.).

The process by which the treatment mixture and the ink are applied is not dispositive of the issue of the patentability of the instant article claims.

5. Claims 26, 37, 48 and 58-63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mishima (US 6,183,851) in view of Kuwabara et al. (US 5,981,045).

Mishima discloses an ink jet recording medium comprising a support and a coating layer on the support (abstract). The support can be a cloth (col. 17, line 12). The coating layer comprises amine containing cationic compound (col. 15, line 62), and UV absorbers (col. 16, line 29). The experimental modification of this prior art in order to ascertain optimum operating conditions fails to render applicants' claims patentable in the absence of unexpected results. *In re Aller*, 105 USPQ 233. One of ordinary skill in the art would have been motivated to adjust the content of the UV absorber in order to optimize the light stabilizing properties of the layer. A prima facie case of obviousness may be rebutted, however, where the results of the optimizing variable, which is known to be result-effective, are unexpectedly good. *In re Boesch and Slaney*, 205 USPQ 215. Printing is conducted on the recording medium; however, the Mishima does not disclose the use of anionic ink.

Kuwabara teaches a medium comprising a cloth treated with a cationic material and anionic ink is applied on the treated cloth (col. 10, line 40).

Mishima and Kuwabara are analogous art because they are from the same field of endeavor that is the ink jet recording medium. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the anionic ink of Kuwabara with the invention of Mishima in order to increase the dye affinity of an image (col. 10, line 46 of Kuwabara).

The process by which the treatment mixture and the ink are applied is not dispositive of the issue of the patentability of the instant article claims.


Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Betelhem Shewareged whose telephone number is 571-272-1529. The examiner can normally be reached on Mon.-Fri. 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

B.S.
March 21, 2006.


BETELHEM SHEWAREGED
PRIMARY EXAMINER